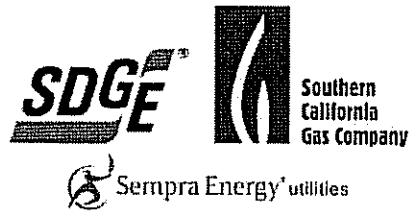
Appendix C

BMP Manual

MANUAL



WATER QUALITY CONSTRUCTION BEST MANAGEMENT PRACTICES MANUAL

Prepared for:

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101 Ash Street
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URS Project No. 27644947.03B00

December 2002

When

A sand bag barrier is a temporary linear sediment barrier consisting of stacked sand bags, designed to intercept and slow sediment-laden storm water and non-storm water runoff. Sand bag barriers allow sediment to settle from runoff before water leaves the construction site.

- Sand bags can be used where flows are moderately concentrated, such as ditches, swales, and storm drain inlets to divert and/or detain flows. See BMP on Storm Drain Inlet Protection.
- To divert or direct flow away from disturbed slopes or create a temporary sediment basin.
- During construction activities in streambeds when the contributing drainage area is 1 to 5 acres.
- To capture and detain non-storm water flows until proper cleaning operations occur.
- When site conditions or construction sequencing require adjustments or relocation of the barrier to meet changing field conditions and needs during construction.
- To temporarily close or continue broken, damaged or incomplete curbs.

Sand bag barriers are used:

- Where it is desirable to block and pond flow (e.g., for containment of non-storm water flows). Use caution when using sand bag barriers in traffic areas or other areas where potential flooding is not desirable.
- Along the perimeter of a site, vehicle and equipment fueling and maintenance areas, chemical storage areas, or stockpiles.
- Below the toe or down slope of exposed and erodible slopes.
- Parallel to streams, channels, and roadways.
- Across channels to serve as a barrier for utility trenches or provide a temporary channel crossing for construction equipment, or to reduce stream impacts.

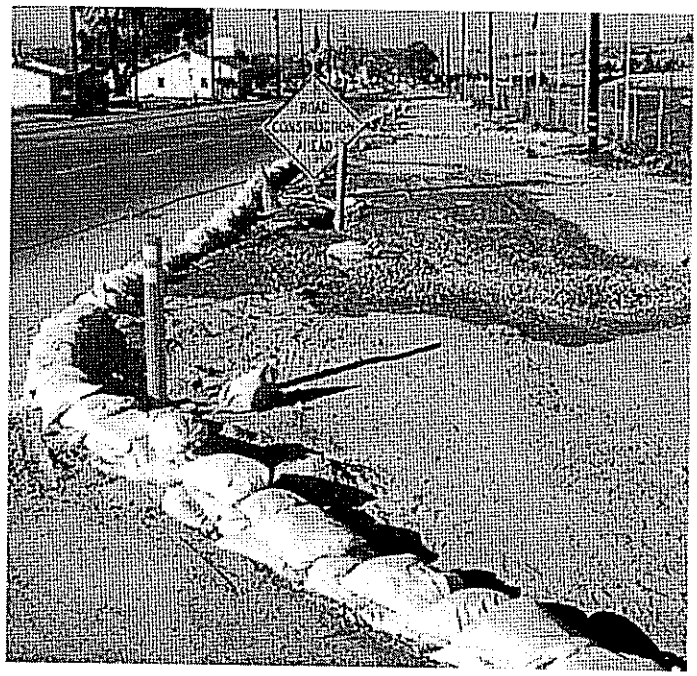
How

- When used as a linear control for sediment removal:
  - Install along a level contour.
  - Turn ends of sand bag row up slope to prevent flow around the ends.
  - Generally, sand bag barriers shall be used in conjunction with temporary soil stabilization controls up slope to provide effective control.
- When used for concentrated flows:
  - Stack sand bags to required height. When the required height is three rows or more, use a pyramid approach. Upper rows of sand bags shall overlap joints in lower rows.
  - Construct sand bag barriers with a setback of at least 3 feet from the toe of a slope. Where a 3-foot setback is not practicable, construct as far from the toe of the slope as practicable.

Maintenance and Inspection

- Inspect sand bag barriers prior and after each storm event, and routinely throughout the rainy season.
- Repair washouts or other damages as needed, or as directed by the projects Environmental Representative.
- Inspect sand bag barriers for sediment accumulations and remove sediments when accumulation reaches one-third the barrier height.
- Remove sand bags when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilized the area. Incorporate removed sediment at appropriate project locations or dispose of at an SCG/SDG&E-approved site.

Pictures



Sand bags used as perimeter control.

When

Use this BMP when projects require stockpiled soil and paving materials. The stockpile management practices used differ based on forecasted weather or terrain.

- Protection of stockpiles must be implemented whenever there is a potential for transport of materials by a water source (forecast precipitation or any non-storm water runoff).

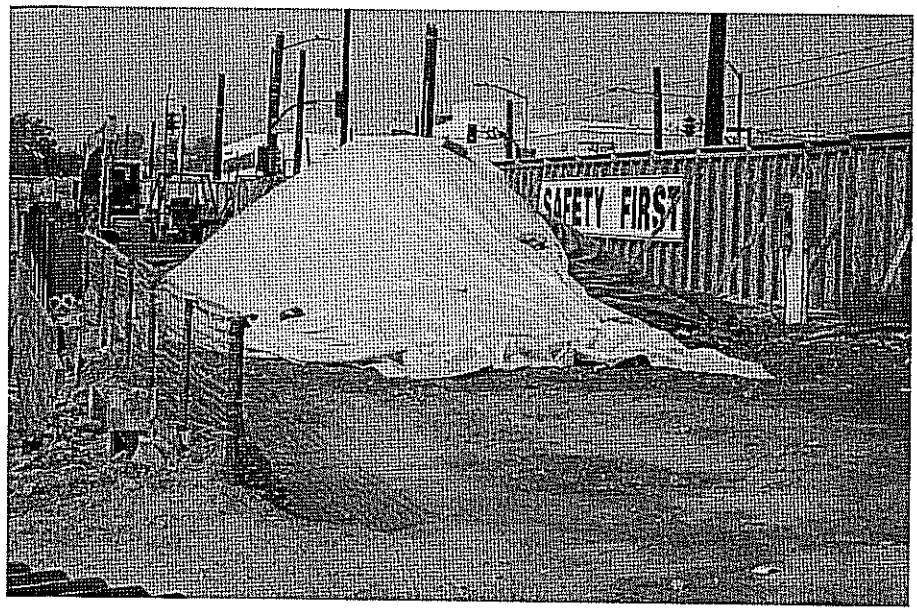
How

- One or more of the following options may be used to manage stockpiles and prevent stockpile erosion and sediment discharges for stormwater and non-storm water runoff/run-on.
  - Stockpile may be returned to the excavation if precipitation is forecast.
  - Protect stockpiles from stormwater run-on using a temporary perimeter sediment barrier such as berms, silt fences, fiber rolls, covers, sand/gravel bags, or straw bale barriers, as appropriate.
  - Stockpiles may be hauled off or temporarily stored in a protected location off site.
- Keep stockpiles organized and surrounding areas clean.
- Protect storm drain inlets, watercourses, and waterbodies from stockpiles, as appropriate.
- Implement dust control practices as appropriate on all stockpiled material.
- **Stockpiles should be covered, stabilized, or protected with a perimeter sediment barrier prior to the onset of precipitation.**

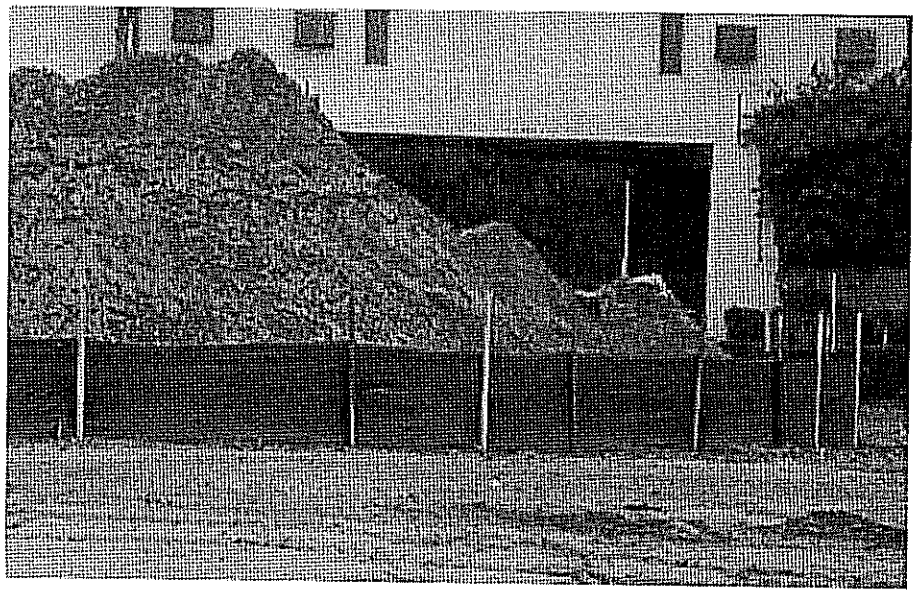
Maintenance and Inspection

Repair and/or replace covers, and perimeter containment structures as needed.

Pictures



Stockpile covered with plastic and secured with large rocks.



Silt fence used for stockpile perimeter control.

When

If it is necessary to store materials at a construction site. This BMP does not apply to materials and supplies stored on trucks that are driven on site and off site daily.

How

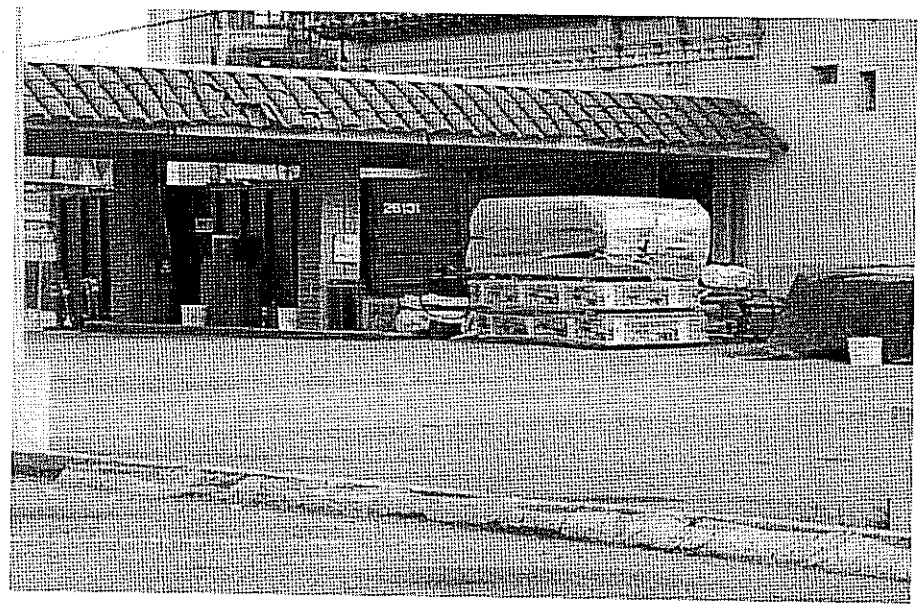
Use the following measures as appropriate:

- Only store the minimum amount of material that is needed for the job.
- Locate storage areas away from storm drain inlets, drainage systems, and watercourses to prevent storm water run-on from reaching the materials.
- If practical, store materials in enclosed storage containers such as cargo containers.
- Store materials on impervious surfaces or use plastic groundcovers to prevent any spills or leakage from contaminating the ground.
- For known hazardous materials, keep materials covered using plastic of other waterproof materials.
- If necessary provide secondary containment systems around material storage areas to prevent contaminated run-off/run-on from leaving storage area(s).
- Keep adequate supply of spill kit materials nearby.
- Ensure that qualified personnel are available when hazardous materials are delivered to ensure proper delivery and storage in designated area.
- When storage area is no longer needed, return it to original condition.
- Bagged materials such as cold patch, concrete mix, and other materials with the potential to pollute runoff should be placed on pallets and under cover.

Maintenance and Inspection

Repair or replace covers, containment structures, or perimeter controls as needed to ensure proper functioning. Perform routine inspections of designated delivery and storage areas.

Pictures



Materials are covered and neatly stored with a curbed area.

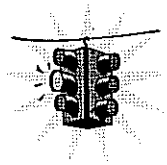
When

Apply this BMP when the following materials are used or prepared on site:

- Pesticides and herbicides.
- Fertilizers and soil amendments.
- Detergents.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and other concrete components.
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds.
- Mastic, pipe wrap, primers, and paint.
- Concrete compounds.
- Welding material.
- Other materials that may be detrimental if released to the environment.

How

- Reduce or eliminate use of hazardous materials on site when practical. Contact your Environmental Representative for additional information.
- Empty latex paint and paint cans, used brushes, paint rags, absorbent materials, and drop cloths. When these items are thoroughly dry and are no longer hazardous, may be disposed of with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- When possible, mix paint indoors, otherwise use secondary containment structures. Do not clean paintbrushes or rinse paint containers into a street, gutter, storm drain, sanitary sewer or watercourse.
- Dispose of any paint thinners, residue and sludge(s), that cannot be recycled, as hazardous waste. For water-based paint, clean brushes to the extent practical, and rinse into a concrete washout pit or temporary sediment trap. For oil-based paints, clean brushes to the extent practical and filter and reuse thinners and solvents.
- If possible, recycle residual paints, solvents, non-treated lumber, and other materials.



- **Do not over-apply fertilizers, pesticides, and soil amendments. Prepare only the amount needed. Strictly follow the recommended usage instructions.**
- Keep an ample supply of spill clean up material near use areas. Instruct employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall unless sufficient time has been allowed for them to dry or cure.
- Hazardous materials use shall also be managed in accordance with the BMP on "Hazardous Materials/Waste Management."

Maintenance and Inspection

- Spot-check employees and contractors regularly throughout the job's duration to ensure appropriate practices are being employed.

When

This best management practice (BMP) applies to all construction sites at all times. Spill control procedures are implemented anytime chemicals and/or hazardous substances are stored. Substances may include, but are not limited to fuels, lubricants, solvents, fertilizers, pesticides, herbicides, soil binders, coolants, paints, and sewage.

To the extent that work can be accomplished safely, spills of materials or chemicals shall be contained and cleaned up immediately.

How

Stop the spillage of material if it can be done safely. Clean the contaminated area, and properly dispose of contaminated materials. For all spills notify the project foreman and/or the Environmental Representative. Use the following spill prevention and controls when applicable.

- To the extent that it doesn't compromise clean up activities, spills shall be covered and protected from storm water run-on during rainfall.
- Spills shall not be buried or diluted with wash water.
- Used clean up materials, contaminated materials, and recovered spill material shall be stored and disposed of in accordance with federal, state and local regulations Refer to BMP on "Hazardous Materials/Waste Management").
- Use absorbent materials on spills rather than using water to hose down the spill.
- When water is used for cleaning and decontamination of a spill, the water shall not be allowed to enter storm drain inlets or watercourses, and shall be collected and disposed of properly. Coordinate disposal of these wastes with the Environmental Representative.
- Keep spill cleanup kits in areas where any materials are used and stored.

Maintenance and Inspection

- Perform routine inspections to verify that spill control clean up materials are near material storage, unloading, and use areas.

When

These BMPs should be used on all construction projects that generate solid waste. Solid wastes may include, but are not limited to concrete, cement, asphalt rubble, masonry brick/block, vegetation debris, steel and scrap metals, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam, general trash and other materials used to transport and package construction materials.

How

- Practice good housekeeping and keep site clean.
- Use "dry" methods for site clean up such as sweeping, vacuuming and hand pick-up.
- Designate a waste storage area on site. If a designated waste storage area is not feasible, remove wastes from the site regularly.
- Prohibit littering by employees, contractors and visitors.
- Trash receptacles should be available on site and/or on construction vehicles.
- Protect wastes from being washed away by rainfall, storm water run-on, or other waters (irrigation, water line breaks, etc.).
- To prevent storm water run-on from contacting stored solid waste (stockpiled materials) use berms, secondary containment, covered dumpsters/roll-offs or other temporary diversion structure or measures.
- For materials with the potential for spills or leaks, stockpile on impervious surfaces or use plastic groundcovers to prevent spills or leaks from infiltrating the ground.
- Do not hose out or clean out dumpsters or containers at the construction site.
- Prevent solid waste and trash from entering and clogging storm drain inlets.
- As practical, incorporate any removed clean sediment and soil back into the project.
- Reference BMP on Stockpile Management.

Maintenance and Inspection

- Collect site trash regularly, especially before rainy or windy conditions.
- Perform routine inspections of site, including storage areas, dumpsters, stockpiles and other areas where trash and debris are collected.
- Close trashcan lids and dumpster covers before rainy or windy conditions.

When

Use this BMP when projects involve the storage and use of hazardous materials, and the generation of waste byproducts, from the following:

- Petroleum products such as oils, fuels, greases, cold mix, and tars
- Glues, adhesives, and solvents
- Herbicides, pesticides, and fertilizers
- Paints, stains, and curing compounds
- Other hazardous or toxic substances

How

Hazardous materials and wastes shall be managed in accordance with the following procedures:

- Minimize the amount of hazardous materials stored at the construction site and the production and generation of hazardous waste at the construction site.
- Cover or containerize and protect from vandalism any hazardous materials and wastes.
- Clearly mark all hazardous materials and wastes. Place hazardous waste containers in secondary containment systems if stored at the construction site.
- Stockpiled cold mix should be placed on and covered with plastic.
- Do not mix waste materials, because this complicates or inhibits disposal and recycling options and can result in dangerous chemical reactions.
- Storm water that collects within secondary containment structures must be inspected prior to being discharged to ensure no pollutants are present. Contaminated storm water must be managed per Utility Environmental Practices (EPs)
- Spills cannot be discharged from a secondary containment system. See BMP on Spill Control.
- Hazardous waste must be segregated from other solid waste and disposed of properly.
- In addition to following this BMP, employees or contractors are responsible for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous waste.

Maintenance and Inspection

- Routinely inspect the covers on hazardous material storage areas for tears or flaws and repair as necessary.
- All secondary containment systems must be able to hold the volume of the largest container in the storage area, plus provide sufficient additional capacity for storm events.
- Perform routine inspections to ensure that no hazardous materials or waste are improperly left exposed to storm water.

When

This contaminated soil management BMP should be used whenever soil contamination is suspect or contaminated soil is encountered. Construction crews should be extra vigilant on projects located in highly urbanized or industrial areas where soil contamination may have occurred because of spills, illicit discharges, and leaks from underground storage tanks.

Contaminated soils may also be encountered during digging and trenching activities on highways and roadways.

How

Contaminated soil wastes should be managed in accordance with the following procedures:

- Identify contaminated soil; look for the following:
  - Soil that is discolored, black, gray, white; or
  - Soil that has an unusual odor, such as, petroleum, acid, alkaline, sewage, solvent, or any other chemical smell.
- If any potentially contaminated soil is detected, discontinue the activity and contact the projects Environmental Representative.
- Contaminated soils must be managed properly per Utility Environmental Practices (EPs).

Maintenance and Inspection

- Perform routine inspections of digging and trenching operations looking for contaminated soils.
- All contaminated soils must be managed as hazardous substances, if applicable, in accordance with applicable federal, state, and local laws.

When

Use this BMP on all construction sites that use temporary or portable sanitary/septic waste systems.

How

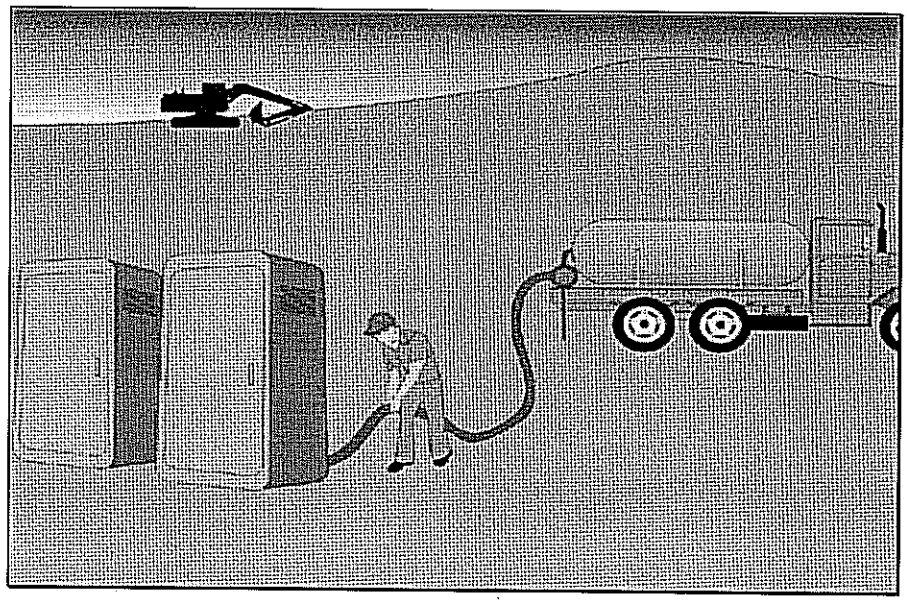
Sanitary/septic wastes shall be managed in accordance with the following procedures:

- Incorporate into regular safety meetings, education of employees, contractors, and suppliers on:
  - potential dangers to humans and the environment from sanitary/septic wastes
  - approved sanitary/septic waste storage and disposal procedures.
- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. When subjected to high winds or risk of high winds, temporary sanitary facilities shall be secured to prevent overturning.
- Sanitary wastewater should not be buried or discharged, except to a properly permitted sanitary sewer discharge facility. A permit may be required from the local Sanitation District.
- Use only reputable, licensed sanitary/septic waste haulers.
- Temporary sanitary facility's holding tanks shall be emptied prior to transport.

Maintenance and Inspection

- Onsite sanitary/septic waste storage and disposal should be routinely inspected.
- Ensure that sanitary/septic facilities are maintained in good working order routinely serviced by a licensed service.

Pictures



Good septic waste management.

When

- Liquid waste management is applicable to construction projects that generate any of the following non-hazardous byproducts, residuals, or wastes, such as:
  - Drilling slurries and drilling fluids
  - Grease-free and oil-free wastewater and rinse water
  - Dredging spoils
  - Other non-storm water liquid discharges not permitted by separate permits.
- Separate BMPs should also be referenced for the following onsite liquid wastes:
  - Dewatering operations
  - Liquid hazardous wastes, or
  - Concrete slurry residue

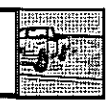
How

- Vehicle and equipment cleaning using water is discouraged on site.
- Drilling residue and drilling fluids should be disposed of in accordance with Sempra Energy Utilities procedures at an approved disposal site. Coordinate the disposal of these wastes with your Environmental Representative.
- Wastes generated as part of an operational procedure, such as waterladen dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters.
- Contain non-hazardous liquid wastes in a controlled area, such as a lined holding pit, lined sediment basin, roll-off bin, or portable tank.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated and any addition volume based on anticipated rainfall.

- **Do not locate containment areas or devices where accidental release of the contained liquid can threaten health or safety, or discharge to watercourses, storm drain system, or to a receiving water.**
- Capture all liquid wastes running off a surface that has the potential to affect the storm drainage system. Examples are: wash water and rinse water from cleaning walls or pavement.
- If the liquid waste is sediment laden, use a sediment trap or capture in a containment device and allow sediment to settle.
- Disposal of liquid wastes are subject to specific laws and regulations, or to requirements of other permits secured for the construction project. Contact your Environmental Representative for further information.

Maintenance and Inspection

- Remove deposited solids from containment areas and containment systems as needed, and at the completion of the project.
- Inspect containment areas and containment systems routinely for damage, and repair as needed.



When

Prior to conducting over water activities, confirm the need for permits with appropriate local and state agencies.

This BMP applies to projects where:

- Construction, maintenance or repair activities will be conducted above surface waters. These activities include, but are not limited to, chipping, grinding, scraping, welding/burning, painting, wrapping and coating of pipes and conduits.
- Surface waters (dry or running) include creeks, streams, rivers, lakes and wetlands, bays, estuaries and oceans.

How

Use the following measures as applicable:

- Containment systems must be properly designed and installed prior to the beginning of any operation that may impact a water body to prevent discharge of pollutants to surface waters.
- The work area should be kept clean of all trash and potential pollutants.
- Containment booms should be placed around the area of work as necessary to contain the discharge of potential contaminants such as oil and hydraulic fluid.
- Special attention should be given to existing and forecasted wind and weather conditions to prevent pollutant discharges to surface waters.
- Shrouds should be used to prevent paint overspray, welding slag, and other pollutants from entering surface waters and being dispersed into the air. Shrouding may not be effective during periods of high wind.
- Shrouds should be large enough to adequately enclose or segregate the working area from surface waters. This may include a plywood barrier, visqueen, and scaffolding to help prevent fugitive material from entering surface waters.
- Support structures such as scaffolding shall be used in conjunction with shrouding to withstand potential wind stress.
- Contaminated shrouding material and equipment shall be thoroughly cleaned or disposed of properly.

Maintenance and Inspection

- Inspect the containment systems and shrouds routinely during work activities to ensure their integrity.

When

This BMP is applicable to projects when:

- There are areas on site where no construction activity is planned or will occur later.
- Identify areas to be preserved in the immediate vicinity of the construction site, and mark as appropriate before clearing and grubbing or other soil disturbance activities begin.
- Areas with vegetation that can be preserved to protect against soil erosion, such as on steep slopes, watercourses, and building sites in wooded areas.
- Areas designated as Environmentally Sensitive Areas (ESAs), or where federal, state, or local government regulations require preservation, such as wetlands, vernal pools, marshes, etc. These areas are typically flagged by a qualified biologist.

How

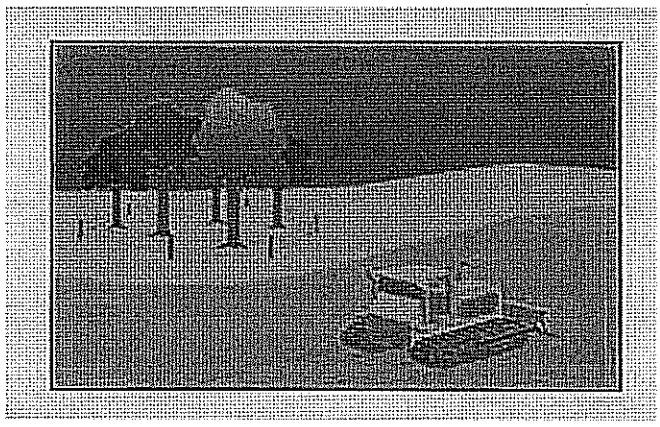
Use the following measures as applicable:

- Preserve existing vegetation whenever possible.
- If necessary, contact the project Environmental Representative for any clarification regarding areas to be preserved.
- Whenever possible minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and follow existing contours to reduce cutting and filling.
- Construction materials, equipment storage and parking areas should be located outside the drip line of any tree to be retained.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Remove any markings, barriers, or fencing after project is completed.

Maintenance and Inspection

- Maintain the clearly marked limits of disturbance during construction as appropriate to preserve vegetation.
- Inspect barriers regularly during construction.

Pictures



Vegetation to be preserved is marked and outside the work area.